Lucent Technologies
Bell Labs Innovations

MAX TNT®

TAOS 9.1.9 Release Note

For software release 9.1.9
September 30, 2002

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Contents

Upgrade and downgrade procedures for TAOS 9.1.9

This section shows how to upgrade and downgrade the TAOS software for a MAX TNT unit.

Requirements and recommendations

These recommendations for upgrading MAX TNT units help ensure a smooth upgrade. If you must downgrade from this release to a previous one, please see "Downgrade instructions" on page 5.

Memory requirement in TAOS 9.1.9

To upgrade to TAOS 9.1.9, your MAX TNT unit must be equipped with the 32MB flash card. Please contact your Lucent sales representative to purchase the 32MB flash card.

32MB JEDEC DRAM card required for this release

For this release, the MAX TNT requires a 32MB JEDEC DRAM card (model number TNT-SP-DRAM-32). New MAX TNT units now ship standard with the 32MB DRAM card.

The 32MB JEDEC DRAM card is not hot swappable. To install the card, you must turn off power to the MAX TNT, insert the card, and then turn on power to the MAX TNT. For additional information about the card, contact your sales representative.

Obtaining the TAOS 9.1.9 software

The MAX TNT TAOS 0.1.x software consists of the following files:

Filename	Descriptions
`tntsrb.bin`	The boot loader. Both T1 and E1 loads use the same boot loader software. Install the appropriate boot loader for your software release when upgrading or downgrading.
`tntrel.tar` and `tntrel2.tar`	Tar files (T1 load) that contain images for the shelf controller and all T1-compatible slot cards.
`tntrele.tar` and `tntrele2.tar`	Tar files (E1 load) that contain images for the shelf controller and all E1-compatible slot cards.

If you need further assistance on obtaining the TAOS 9.1.9 software, see "Customer Service" on page iii.

To identify the software that you need based on the slot cards that have been physically installed in your chassis, refer to the following table. This table lists the contents of the tar files that contain the most commonly used slot-card images.

Minimally, you must load the first tar file (`tntrel.tar` or `tntrele.tar`). If your MAX TNT chassis contains additional slot cards (for example, a SWAN slot card), then you must also load the second tar file (`tntrel2.tar` or `tntrele2.tar`).

Table 1 lists the contents of the MAX TNT TAOS 9.1.9 tar files.

Table 1. Tar file content description

Filename	Contents	
	Description	**Slot-card images**
tntrel.tar	Shelf controller	tntsr
	Ethernet	tntenet2 tntenet3 tntenet3nd
	HDLC	tnthdlc2 tnthdlc2ec
	T1-specific images	tnt8t1 tntt3 tntut1 tntpctfit
	MAX TNT modem images	tntcsmx tntcsm3v tntmdm56k
	MultiDSP	tntmadd
tntrel2.tar	STM-0	tntstm0
	UDS3	tntuds3
	DS3-ATM, DS3-ATM-2	tntds3atm tntds3atm2
	OC3-ATM	tntoc3atm tnt0c3atm2
	SWAN	tntswan tntswan2
	Analog modem	tntamdm
tntrele.tar	Shelf controller	tntsre
	Ethernet	tntenet2 tntenet3 tntenet3nd
	HDLC	tnthdlc2 tnthdlc2ec
	E1-specific images	tnt8e1 tntue1 tntpctfie
	MAX TNT modem images	tntcsmx tntcsm3v tntmdm56k
	MultiDSP	tntmadd
tntrele2.tar	E3-ATM	tnte3atm
	OC3-ATM	tntoc3atm tnt0c3atm2
	SWAN	tntswan tntswan2
	Analog modem	tntamdm

Local access to the unit recommended

Whenever you install system software, Lucent recommends that you access the unit through the shelf controller serial or LAN port rather than a slot card port.

If your unit is configured with DNIS and CLID passwords, after upgrading from TAOS 8.x to TAOS 9.x, the unit no longer recognizes the `dnis-password` and `clid-password` values that were set in prior releases, and dial-in users might experience a busy tone.

Saving the system configuration

As a general practice, always save the system configuration before upgrading or downgrading system software. If you use TFTP to save the system configuration, the target file must exist on the TFTP server and you must have permission to write it. For example, the following commands executed on a TFTP server create a target file and set its permissions:

```
$ touch /tftpboot/config/testcfg.1
$ chmod a=rw /tftpboot/config/testcfg.1
```

Before you save the system configuration, you must enable the `allow-password` permission in the `User` profile to save the configured passwords. If you do not have `allow-password` permission enabled, you are prompted to confirm that you wish to save the configuration without passwords. If you do so and then restore the saved configuration, all passwords in the configuration are wiped out. The following commands executed on the MAX TNT unit save the system's configuration to the target file on the TFTP server and then restore the saved configuration:

```
admin> save network 10.10.10.10 config/testcfg.1
admin> load config network 10.10.10.10 config/testcfg.1
```

Note: For additional information about the `save` command and its options, see the *APX 8000/MAX TNT/DSLTNT Reference*.

Upgrade instructions

These instructions show how to upgrade to TAOS 9.1.9 from TAOS version 8.0.x or later. If you are not sure which version the system is running, enter the `version` command. For example:

```
admin> version
Software version 8.0.5
```

Note: Under certain conditions, the `load tar` command might not recognize the slot cards and load only the shelf controller image during the upgrade procedure. If this occurs, reset the system and load the tar file again. The second `load tar` command will load the appropriate slot-card images for the system.

Before you begin upgrading

Before upgrading a standalone or multishelf unit, follow these preliminary steps:

1. Log into the system and save its configuration to a TFTP server. This step is optional but strongly recommended. For details, see "Saving the system configuration" on page 3.
2. Verify that the `load-select` profile is configured either to automatically load only required binaries or to load only selected binaries.

Upgrading a standalone MAX TNT unit

Note: The following steps are order sensitive. To help ensure a smooth upgrade, first perform the preliminary upgrade steps described in the preceding section, and then perform the following steps in the order in which they are shown.

To upgrade a standalone unit, proceed as follows:

1 Format the flash card (optional). For example:

```
admin> format flash-card-1
```

2 Load the boot loader. For example:

```
admin> load boot-sr network 10.10.10.10 tntsrb.bin
```

Note: If you upgrade from TAOS 9.0.x or higher, continue with step 4. Otherwise, continue with step 3.

3 Load the tar file. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar
```

Note: Skip step 4.

4 Load the tar file. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar tntrel2.tar
```

5 Restore the system configuration file (optional). For example:

```
admin> load config network 10.10.10.10 /tftpboot/con-
fig/testcfg
```

6 Reset the system as follows:

```
admin> reset
```

Note: The `dnis-password` parameter in the `password-profile` subprofile of the EXTERNAL-AUTH profile has been changed to `DNIS`.

Upgrading a multishelf MAX TNT unit

Note: For multishelf systems, the master shelf and each slave shelf must have a 32MB JEDEC DRAM card (model number TNT-SP-DRAM-32).

Note: MultiVoice® is not supported on multishelf systems.

If you are upgrading a multishelf system, you must load the new boot loader to the slave shelves by using the Loadslave command. (The version of the `tntsrb.bin` file on the master shelf must match the `tntsrb.bin` version on the slave shelves. Otherwise, the slave shelves cannot load code from the master shelf.) In addition, you must load a link to a redundant image of the tar file located in onboard flash.

The following steps are order sensitive. To help ensure a smooth upgrade, first perform the preliminary steps described in "Before you begin upgrading" on page 3, and then perform the following steps in the order in which they are shown:

1 Format the flash card (optional). For example:

```
admin> format flash-card-1
```

2 Load the boot loader. For example:

```
admin> load boot-sr network 10.10.10.10 tntsrb.bin
```

3 Load the new boot loader to the slave shelves. For example, the following command loads the boot loader to a slave shelf with a rotary-switch setting of 2:

```
admin> loadslave 2 boot-sr
```

Note: If you are upgrading from TAOS 9.0.x or higher, skip step 4 and continue to step 5.

4 Load the tar file. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar
```

Note: Skip step 5 and continue with step 6.

5 Load the tar file. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar tntrel2.tar
```

6 Use the `Loadslave` command to load a link to the `image2` file, which is a redundant compressed image of the of the binary in the NVRAM. For example, the following command loads the image to a slave shelf with a rotary-switch setting of 2:

```
admin> loadslave 2 image2
```

7 Restore the system configuration file (optional). For example:

```
admin> load config network 10.10.10.10 /tftpboot/con-
fig/testcfg
```

8 Reset the system, as follows:

```
admin> reset -a
```

Downgrade instructions

Because releases are not necessarily backward compatible, Lucent recommends that you always restore a backup configuration made under the previous version or one of its predecessors.

Note: If you must downgrade, you must have serial access to the MAX TNT. See the previous *MAX TNT TAOS 9.0 Release Notes* at `http://www.lucent.com/support/documentation.html`.

Downgrading a standalone MAX TNT unit

To restore a previous software version (prior to TAOS 9.1.9), proceed as follows:

1 Format the flash card. For example:

```
admin> format flash-card-1
```

2 Load the previous version of the boot loader. For example:

```
admin> load boot-sr network 10.10.10.10 tntsrb.bin
```

Note: If downgrading to a previous software version prior to 9.0.x, continue with step 3. Otherwise, continue with step 4.

3 Load the previous version of the tar file. For example, to load via TFTP from a local host:

```
admin> load tar network 10.10.10.10 tntrel.tar
```

Note: Skip step 4 and continue with step 5.

4 Load the previous version of the tar file files.

```
admin> load tar network tntrel.tar tntrel2.tar
```

5 Clear all profiles by entering the `nvram` command. For example:

```
admin> nvram
```

6 Log into the system via the serial connection. Open the `IP-Interface` profile for the shelf controller and set the address. For example:

```
admin> read ip-interface { { 1 controller 1 } 0}
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } read

admin> set ip-address = 10.10.10.2/24

admin> write
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } written
```

7 Load a backup configuration made under the restored software version or one of its predecessors. For example:

```
admin> load config network 10.10.10.10 config/801-config
```

8 Reset the system. This step is required. For example:

```
admin> reset
```

Downgrading a multishelf MAX TNT unit

If you are downgrading a multishelf system, you must load the restored boot loader to the slave shelves by using the Loadslave command. (The version of the `tntsrb.bin` file on the master shelf must match the `tntsrb.bin` version on the slave shelves. Otherwise, the slave shelves cannot load code from the master shelf.) In addition, you must load a link to a redundant image of the restored tar file. To downgrade a multishelf unit, proceed as follows:

1 Format the flash card. For example:

```
admin> format flash-card-1
```

2 Load the boot loader. For example:

```
admin> load boot-sr network 10.10.10.10 tntsrb.bin
```

3 Load the new boot loader to the slave shelves. For example, the following command loads the boot loader to a slave shelf with a rotary-switch setting of 2:

```
admin> loadslave 2 boot-sr
```

Note: If you are downgrading to a TAOS version prior to 9.0.x, continue with step 4. Otherwise, continue with step 5.

4 Load the tar file. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar
```

Note: Skip step 5 and continue with step 6.

5 Load the tar files. For example:

```
admin> load tar network 10.10.10.10 tntrel.tar tntrel2.tar
```

6 Use the `Loadslave` command to load a link to the `image2` file, which is a compressed image of the binary in the NVRAM. For example, the following command loads the image to a slave shelf with a rotary-switch setting of 2:

```
admin> loadslave 2 image2
```

7 Clear all profiles by entering the `nvram` command. For example:

```
admin> nvram
```

8 Log into the system (master shelf) via the serial connection. Open the `IP-Interface` profile for the shelf controller and set the IP address. For example:

```
admin> read ip-interface { { 1 controller 1 } 0}
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } read

admin> set ip-address = 10.10.10.2/24

admin> write
IP-INTERFACE/{ { shelf-1 controller 1 } 0 } written
```

9 Load a backup configuration made under the restored software version or one of its predecessors. For example:

```
admin> load config network 10.10.10.10 /tftpboot/config/801-config
```

Note: Steps 10 and 11 are required and are order sensitive.

10 To enable the shelf controller as master shelf, reset the system as follows:

```
admin> reset
```

11 To enable the system as a multishelf system, reset the system as follows:

```
admin> reset -a
```

TAOS 9.1.9 enhancements and corrections

TAOS 9.1.9 introduced new enhancements and corrected certain problems from the previous release.

TAOS 9.1.9 enhancements

TAOS 9.1.9 includes the following enhancements.

Improved POST diagnostics for slot cards

The power-on and self test (POST) logic has been improved. Slot cards that pass POST with previous software releases might now be declared defective.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.817 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8175 firmware.

Firmware versions for MultiDSP cards

TAOS 9.1.9 includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.71, Modem DSP V0.1909.0, and VoIP DSP V3.0.52 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.71, Modem DSP V0.1909.0, and VoIP DSP V3.0.52 Lucent firmware.

TAOS 9.1.9 corrections

Table 2 lists the change requests (CR) identification numbers and the problems corrected in TAOS 9.1.9.

Table 2. Change request ID numbers and problems corrected in TAOS 9.1.9

CR ID	Problem corrected
6002416	TAOS units sent some periodical accounting records to the RADIUS server even when the `acct-sess-interval` parameter was set to `0`.
7006834	Ethernet-2 slot cards rebooted with a Warning 179 message and no fatal errors.

Table 2. Change request ID numbers and problems corrected in TAOS 9.1.9 (continued)

CR ID	Problem corrected
7006963	The TAOS unit was receiving FE36 resets on the 96-port MultiDSP modem card upon upgrade to the current software.
7007016	Binary FTP client downloads were hanging when a call was established with a Nokia mobile phone using V.120 Point-to-Point Protocol (PPP) and a user rate of 19.2 or 28.8Kbps. The problem occured after 8 to 12 Kb of data was transfered from a CSM3/V or HDLC2 slot card to the client (client `download` or get).
7007103	The HDLC2 and Ethernet-2 slot cards reset daily with FE42. Warning messages 179 and 104 were also logged.
7007108	Approximately half of TAOS units with Ethernet-2 slot cards were experiencing `index 95 (Card bounced, timeout failure)`.
7007110	On the Ethernet-3ND slot card, the SNMP agent incorrectly populated RFC 2233 MIB objects. The Ethernet-3ND was also inconsistent with Ether-3 and Ethernet-2 slot cards.
7007138	TAOS units forwarded the Hot Standby Routing Protocol (HSRP) multicast packet with the source IP address as the Cisco IP address.
7007140	After rebooting, the TAOS unit received the following fatal error three times before the system came up: `Shelf-Controller FE36: _gmonTextCount + 0.`
7007150	The TAOS unit missed some autonomous system external linked state advertisements (LSAs) in the Open Shortest Path First (OSPF) database that were present in OSPF routing table
7007153	The `call-log-key` and `shared-secret` were still visible when `allow-password` was set to `no`.
7007186	When downing E1 slot (using the `slot -d` command), the Access SS7 Gateway Control Protocol (ASGCP) message was not sent to the ASG.
7007216	After a PPP a session was established, Sharp's Picwalk SH712m PHS mobile phones with terminated web browser PPP PIAFs calls sent a DNS query to the DNS server. Approximately half of the time the TAOS unit did not forward the first DNS response packet back to the PIAFS terminal when the remote address was assigned from an IP pool and the call went through Ethernet-3ND slot card.
7007221	Data Filters were not being applied when Dialed Number Information Service (DNIS) authentication was used on Remote Authentication Dial-In User Service (RADIUS).
7007267	A `Login-User` with a RADIUS profile failed a Telnet session after 5 seconds.
7007278	The SNMP trap received from the TAOS unit was posted as the wrong data type (`Wrong type: should be Counter32`).
7007280	The TAOS unit sent an SNMP trap to network management system (NMS) when its configuration was changed, but the trap reported `Admin` or `NULL` instead of the actual `username` of the person making the configuration change.

Table 2. Change request ID numbers and problems corrected in TAOS 9.1.9 (continued)

CR ID	Problem corrected
7007315	There was either a mismatch in the management information base (MIB) between the interface index of the soft IP address reported in the `ipAddrTable` and in the `ifTable`, or the interface index of the soft IP address reported in these tables was the same. This impacted the way the TAOS unit was discovered in network management software, and prevented correct supervision of the network access server in HP OpenView.
7007351	TAOS units rejected incoming V.120 calls at the Integrated Digital Services Network (ISDN) when incoming Q.931 setup messages containedlogical link control (LLC) information and V.120 bearer capatibility. The call was not routed to a modem card, and was released on the E1 slot card with an `Incompatible Destination` message.
7007356	Fragmented 1500 byte packets were incorrectly compressed with MS-STACK and Mircrosoft Point-to-Point Compression (MPPC).
7007385	FTP sessions over Mircrosoft Point-to-Point Compression (MPPC) froze on both Win98SE and Win2k at approximately 99% during an `ftp get` transfer.
7007388	The Layer 2 Tunneling Protocol (L2TP) user name length was limited to 31 characters when using the L2TP access concentrator (LAC) Proxy Link Control Protocol (LCP).
7007391	A terminal server Point-to-Point Protocol (PPP) delay was applied to V.120 and X.75 asynchronous calls when Dial Number Information Service (DNIS) pre-authentication and an immediate service, such as Raw Transport Control Protocol (TCP), was used.
7007407	There was a V.92 connection problem with Zoom serial modems.
7007499	When users connected to a BZ5000 switch placed a VoIP call to a TAOS unit, they did not receive a voice announcement. The voice announcement was sent from the TAOS unit to the switch, but the switch was unable to pass it on to the user because the extension bit (bit 8) of the third octet needed to be set to `1` and the TAOS unit was sending a value of `0`.
7007523	The Courier Modem I did not work with V.34 emulation.
7007527	TAOS unit either corrupted or duplicated tones received at the egress gateway. In traces, PIN tones were received in altered form and propagated to the switch.
7007534	Microsoft Challange Handshake Authentication Protocol (MS-CHAP) V1 authenication via RADIUS failed.
7007535	When an `IP TCP SYN` packet was sent to an unreachable TCP port (for example, port 80) on the open virtual router interface or system address, the `TCP RST ACK` reply packet was sent by the TAOS unit originating from the main router interface.
7007555	The T3 slot card crashing with FE18 and shut down the quadrant.
7007586	Data link connection identifier (DLCI) backup did not work when Frame Relay Direct was used.
N/A	A `sysConfigChangeTrap(30)` was not sent when the configuration was modified using the Simple Network Management Protocol (SNMP).

TAOS 9.1.8 enhancements and corrections

TAOS 9.1.8 introduced new enhancements and corrected certain problems from the previous release.

TAOS 9.1.8 enhancements

TAOS 9.1.8 includes the following enhancements.

Improved POST diagnostics for slot cards

The power-on and self test (POST) logic has been improved. Slot cards that pass POST with previous software releases might now be declared defective.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.817 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8175 firmware.

Firmware versions for MultiDSP cards

This release includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.69, Modem DSP V0.1908.0, and VoIP DSP V3.6.2 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.69, Modem DSP V0.1908.0, and VoIP DSP V3.6.2 Lucent firmware.

TAOS 9.1.8 corrections

Table 3 lists the change requests (CR) identification numbers and the problems corrected in TAOS 9.1.8.

Table 3. Change request ID numbers and problems corrected in TAOS 9.1.8

CR ID	Problem corrected
N/A	ATMP: when the HA-HR connection was MP or MPP, only one channel worked.

Table 3. Change request ID numbers and problems corrected in TAOS 9.1.8 (continued)

CR ID	Problem corrected
7006665	No RADIUS accounting `Tunnel-Link-Stop` packet was being sent for an incoming call on an L2TP access concentrator (LAC) when the call went down before ICRQ was sent for the call.
7006816	The `ipportmap` statistics were not being updated when IP packets were routed via fast-path.
7006924	A consistent fatal error 29 on ingress HDLC resource card was occuring when the MAX TNT shelf controller command, `filterdisp` was issued when dial-in user was connected to `vrouter != main`.
7007004	Sessions were reported to have filters present when they infact did not. This happened for the sessions that came up after the TAOS unit had reached its stress condition(maximum calls up).
7007003	When an `ip-route` profile was created, the route was added to the interface as a permanent static route, even though the interface it was tied to was temporary—therefore the route got added without the TEMP flag. Because only routes with a TEMP flag are deleted when a call goes down, routes without a TEMP flag persisted even after the interface they were tied to no longer existed. When an attempt was made to send updates of such routes to the slots, a Warning 179 occured.
7006483	The virtual channel fault-management was not working on OC3-ATM cards
7006818	The `filterdisp` command could not retrieve filter contents for CLID or DNIS authenticated sessions, even though filters were properly applied.
7006685	There were 0.2% data packet loss for SDTN.
7006867	The pseudo route functionality was not working properly.
7007047	Changing the `call-route` profile when a TAOS unit was under heavy stress caused a Warning 179.
7007086	In the syslog messages of IPDC call setups, many LAN information records of the followoing type were found: `Cause 806 maps to "channel unacceptable"`. Some calls were being dropped because the lines were under yellow alarm.
7007104	Cancellation of voice announcements were not successful when cancellation requests were sent within 50 milliseconds of sending of the actual request for playing the announcement.
6000646	MultiDSP card could not be limited to lower modulation using the `+MS=3` answer string.
7007050	There was a high percentage of no carrier calls on MultiDSP cards compared to CSM cards, in Japan.
7007051	The V.92 quick connect was not efficient.
7007085	On MultiDSP cards, there was a high packet latency every 30 seconds at low speed v.34 modulation.
7007096	A double-free of an `mbuf` was causing CSM3v cards to reboot every two minutes with the following warnings and fatal errors:Warning 104, Warning 179, Warning 150 and FE 1, FE 8, FE 29.

TAOS 9.1.5 enhancements and corrections

TAOS 9.1.5 introduced new enhancements and corrected certain problems from the previous release.

Note: TAOS 9.1.5 includes improved resistance to Denial of Service attempts.

TAOS 9.1.5 enhancements

TAOS 9.1.5 includes the following digital modem enhancements.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_2M_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.8177 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8177 firmware.

Firmware versions for MultiDSP cards

This release includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.59, Modem DSP V0.1903.0, and VoIP DSP V3.6.2 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.59, Modem DSP V0.1903.0, and VoIP DSP V3.6.2 Lucent firmware.

TAOS 9.1.3 enhancements and corrections

TAOS 9.1.3 introduced new enhancements and corrected certain problems from the previous release.

TAOS 9.1.3 enhancements

TAOS 9.1.3 includes the following digital modem enhancements.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_2M_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.8177 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8177 firmware.

Firmware versions for MultiDSP cards

This release includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.59, Modem DSP V0.1903.0, and VoIP DSP V3.6.2 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.59, Modem DSP V0.1903.0, and VoIP DSP V3.6.2 Lucent firmware.

TAOS 9.1.3 corrections

Table 4 lists the trouble report (TR) identification numbers and the problems corrected in TAOS 9.1.3.

Table 4. Trouble report ID numbers and problems corrected in TAOS 9.1.3

TR ID	Problem corrected
6001658	The TAOS unit could not bundle two 64K nailed channels between a TNT unit and a P50 D64s2 line.
6002284	The successful connection rate (for dial-in users) was down to 80% in the TNT with DS3 interfaces.
6002335	User sessions authenticated through RADIUS using `Ascend-Telnet-Profile = admin` were unable to perform many administration functions, such as save the configuration to flash or network or open a trunk card.

Table 4. Trouble report ID numbers and problems corrected in TAOS 9.1.3 (continued)

TR ID	Problem corrected
6002537	Treatment of IPX net numbers for IPX dialin clients was inconsistent with other branches.
6002459	Suspect modems were being accessed before remaining available modems were used, causing suspect modems to be used over and over and increasing call failure rate.
6002522	When a coredump was taken on a modem card, the CLID or DNIS information was not present in the stop packet of the call-logging record or in the RADIUS packets.
6002574	The client was using the DNS addresses that the TNT unit sent it in the configure nonacknowledgment (cf-nak) rather than using the DNS addresses that it had been statically assigned and that it indicated it wanted to use in the configure request.
7000009	SS7: After an administrative reset, the TNT unit generated a series of 179 warnings.
7000019	The TNT unit was not accepting multiple formats of Radius Attributes.
7000045	Stacked data was being sent to the shelf controller when an IP address was configured.
7000046	Egress PRI calls failed when, in the configuration for the lines (in the `T1 profile:line-interface:signaling-mode`) the signaling type is defined through the parameter with Feature Group D—either `inband-fgd-in-fgd-out` or `inband-fgd-in-fgc-out`.
7000084	V.110 calls were not being answered.
7000093	Call-logging did not roll back to host 1 at host reset time.
7000100	There was an error in Faststart procedure in which the TNT unit returned fast connect elements. In the call proceeding, the TNT unit did not choose the fast connect transmition proposition proposed in the Setup.
7000101, 7000120	TNT unit failed to open H.245 logical channel, causing release of call.
7000126	The TNT unit added routing entries and summerized the pool even though `Pool-Summary = No`.
7006386	The TNT unit did not re-transmit unacknowledged high-level data link control-normal response mode (HDLC-NRM) packets..
7006448	When `Call-Routing-Sort-Method = Slot-First`, the second channel call was not routed to the same slot. With call routing by telephone numbers, calls were routed to the wrong slot even though the telephone number was specified in the Call-Route profile.
7006454	The values for bytes and packets received during a session and bytes and packets sent during the same session did not equal the bytes sent (0x93), packets sent (0x91), bytes received (0x9E), and packets received (0x9D).
7006469	The `-a` option to the `callroute` command was missing in the interface.

Table 4. Trouble report ID numbers and problems corrected in TAOS 9.1.3 (continued)

TR ID	Problem corrected
7006475	A TNT unit, configured in standard (non faststart) mode, was resetting with VoIP calls initiated from an OpenPhone H323 client configured in faststart mode.
7006485	The TAOS unit was receiving 179 warnings on Madd and Madd2 cards.
7006490	The Madd and CSMX cards were generating 179 warnings.

TAOS 9.1.2 enhancements

TAOS 9.1.2 includes the following digital modem enhancements.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_2M_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.8177 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8177 firmware.

Firmware versions for MultiDSP cards

This release includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.55, Modem DSP V0.1902.0, and VoIP DSP V3.6.2 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.55, Modem DSP V0.1902.0, and VoIP DSP V3.6.2 Lucent firmware.

TAOS 9.1.1 enhancements and corrections

TAOS 9.1.1 includes the following new enhancements and corrected certain problems from the previous release.

TAOS 9.1.1 enhancements

TAOS 9.1.1 includes the following modem manager enhancements.

Firmware versions for digital modem cards

The Mindspeed (formerly known as Conexant) firmware versions for the MAX TNT Digital Modem slot cards include support for V.90, K56flex, K56plus, and all slower, standard modem speeds. This release includes the following Mindspeed firmware:

- Series56 Digital Modem slot cards (also called CSM/1, TNT-SL-48MOD-S56) support V2.0982-K56_2M_DLP_CSM firmware.
- Series56 II Digital Modem slot cards (also called CSM/3, TNT-SL-48MOD-SGL and TNT-SL-48MOD-S-C) support V5.8177 firmware.
- Series56 III Digital Modem slot cards (also called CSMV/3, TNT-SL-48MODV3-S-C) support V5.8177 firmware.

Firmware versions for MultiDSP cards

This release includes the following Lucent firmware versions for the MAX TNT MultiDSP slot cards:

- 48-port MultiDSP slot cards (TNTP-SL-ADI-C or TNTV-SL-ADI-C) support Controller V0.1.53, Modem DSP V0.1902.0, and VoIP DSP V3.6.2 Lucent firmware.
- 96-port MultiDSP slot cards (APX8-SL-96DSP) support Controller V0.1.53, Modem DSP V0.1902.0, and VoIP DSP V3.6.2 Lucent firmware.

This MultiDSP firmware addresses the following trouble reports:

1 Silence timer fixes (TR 6001445)

The two silence timers fixed in this release include:

- Retrain timer, and
- PH2-PH3 silence timer

Prior to this release, modem clients did not respond to retrains initiated by server modems. This issue resulted in abnormal disconnects. The fix of the retrain timer reduced abnormal disconnects and also corrected PH2-PH3 silence timer settings.

2 V90 rate mask fix (TR 6002242)

Prior to this release, some client modems would always attempt to connect at 50667bps. Previous versions of TAOS incorrectly published a lack of support for 50667bps connections. This scenario sometimes resulted in the client modem disconnecting before establishing a data connection. Modems that experienced this problem included Jaguar2000, Legend, T&W, and the TP568. This TAOS release adds support for 50667bps connections.

3 Spectral shaper fix (TR 6001214/6001235)

In prior TAOS releases, some modems would fail to connect to MultiDSP slot cards over slightly degraded circuits. This release modifies the spectral shaping characteristics and provides better connection success rates with client modems such as the AZT MR2800 and the COM1 light modem 56k.

4 MOH disabled by default fix (TR 6002284)

In prior TAOS releases, the Modem-on-Hold (MOH) feature disabled by default. Enabling the MOH feature would occasionally interfere with a call that was not using MOH. This release fixes that problem and has MOH enabled by default.

5 TRN1D timer fix (TR 6002242)

This release increases the TRN1D timeout. Some client modems perform better with the MultiDSP slot cards when the TRN1D timeout has been increased.

6 V22 power level fix (TR 6002540)

In prior TAOS releases, some client modems would fail to establish a connection when connecting to MultiDSP slot cards using V22/V22bis and would fall back to Bell 103. This release fixes this problem.

7 V8 bit mask fix (TR 6001795/6006001)

In prior TAOS releases, the bits in the V8 masks indicating support of V23 were incorrectly set to 0. This caused some client modems to disconnect when attempting to establish a connection using V23 through V8. This release fixes this problem by setting the appropriate bits to 1, which indicate support for V23.

DSCP and TOS support

TAOS 9.1.0 provided Differentiated Services Code Point (DSCP) support by adding configurable parameters to the `Connection`, `Filter`, and `VoIP` profiles and a new RADIUS attribute to support the ability to mark packets for differentiated services that are compatible with RFC 2474 ("Definition of the Differentiated Services Field in the IPv4 and IPv6 Headers", December, 1998).

Note: For 9.1.x releases, queuing strategies, per-hop behaviors, and other QoS schemes defined in RFC 2474 are not supported.

Differentiating class of service

In TAOS 9.1.x, DSCP and Type of Service (TOS) marking is supported on the OC3-ATM2 slot card. However, if configured, it will incurr a performance overhead. The following example illustrates this behavior.

The location of the `tos-options` subprofile within the connection profile is:

```
CONNECTION > ip-options > tos-options
```

The following is an example of the `tos-options` subprofile, named test1.

```
[in CONNECTION/test1:ip-options:tos-options]
active = no
precedence = 000
type-of-service = normal
apply-to = incoming
```

```
marking-type = precedence-tos
dscp = 00
```

In this example of the tos-options subprofile, the active field is set to no. This indicates that TOS marking will not be activated on the IP packets and the performance penalty will not be incurred.

If the `active` field is set to `yes`, the profile will look as follows:

```
[in CONNECTION/test1:ip-options:tos-options]
active = yes
precedence = 000
type-of-service = normal
apply-to = incoming
marking-type = precedence-tos
dscp = 00
```

The packets which arrive at the OC3-ATM2 slot card from the ATM interface are marked with the TOS byte, since the `apply-to` field defines the direction of the packet as incoming. This means that incoming packets will incurr a performance penalty but outgoing packets will not.

Similarly, if the `apply-to` field is changed to `outgoing` the profile looks as follows:

```
[in CONNECTION/test1:ip-options:tos-options (changed)]
active = yes
precedence = 000
type-of-service = normal
apply-to = outgoing
marking-type = precedence-tos
dscp = 00
```

Packets which are destined to egress through the OC3-ATM2 slot card will incurr a performance penalty, whereas packets arriving at the OC3-ATM2 slot card will not incurr this penalty.

Likewise, if the `apply-to` field is set to `both`, the profile looks as follows:

```
[in CONNECTION/test1:ip-options:tos-options]
active = yes
precedence = 000
type-of-service = normal
apply-to = both
marking-type = precedence-tos
dscp = 00
```

Packets destined to arrive at and egress through the OC3-ATM2 slot card will incurr the performance penalty.

Note: This behavior does not affect connection profiles configured for ingress host cards. More specifically, if a users connection profile has TOS enabled, and the card connects to an ingress host card (e.g. 48-port MultiDSP slot card), packets sent from that profile will have the TOS byte marked in the IP header (on the ingress-host card), and if the packets egress through the OC3-ATM2 slot card, they will not incurr the performance penalty; provided that TOS is not enabled on the OC3-ATM2 slot card connection profile.

Command line changes

The following two parameters have been added to the `Connection`, `Filter`, and `VoIP` profiles:

Parameter	Setting
`marking-type`	`precedence-tos` (default)—specifies RFC 791 as the standard to differentiate class of service
`dscp`	`dscp`—specifies RFC 2474 as the standard to differentiate class of service. The `DSCP` value if `DSCP` is specified in the `marking-type` parameter. Values can range from 00 to FF (hexidecimal)

Note: Although all eight bits of the second octet in the IP packet header can be set by entering hexidecimal values from 00 to FF, to stay compliant with RFC 2474 only the first six bits should be set, by entering values from 00 to 3F.

Connection profiles

In a `Connection` profile, the new DSCP parameters are located in the `tos-options` subprofile, as shown in the following example:

```
[in CONNECTION/test-profile:ip-options:tos-options]
active = no
precedence = 000
type-of-service = normal
apply-to = incoming
marking-type = precedence-tos
dscp = 00
```

Filter profiles

In a `Filter` profile, the new DSCP parameters are located in the `tos-filter` subprofile of a specific input or output filter, as shown in the following example:

```
[in FILTER/test-filt:input-filters[1]:tos-filter]
protocol = 0
source-address-mask = 0.0.0.0
source-address = 0.0.0.0
dest-address-mask = 0.0.0.0
dest-address = 0.0.0.0
Src-Port-Cmp = none
source-port = 0
Dst-Port-Cmp = 0
dest-port = 0
precedence = 000
type-of-service = normal
marking-type = precedence-tos
dscp = 00
```

VoIP profiles

In the VoIP profile, the new DSCP attributes are located in the tos-options subprofile, as shown in the following example:

```
[in VOIP/{ "" "" }:tos-options]
active = no
precedence = 101
type-of-service = latency
apply-to = both
marking-type = precedence-tos
dscp = 00
```

RADIUS support

A new VSA RADIUS attribute has been defined to support DSCP marking from RADIUS profiles. The following attribute has been added to the RADIUS dictionary file:

```
ATTRIBUTE       Ascend-IP-DSCP                  3          integer
```

The following attribute values have been added to the dictionary file:

```
VALUE Ascend-IP-TOS IP-TOS-Dscp                              128
VALUE Ascend-IP-DSCP IP-DSCP-Default                           0
```

To select DSCP marking over the default Precedence-TOS marking, the Ascend-IP-TOS RADIUS attribute must be set to IP-TOS-Dscp. The new Ascend-IP-DSCP RADIUS attribute is used to specify the DSCP value to be set in the Connection profile. The value specified in the RADIUS profile must be the decimal equivalent of the binary bit setting desired in the second octet of the IP packet header.

Following is an example RADIUS profile, named test2. The last two lines show how to specify the use of DSCP marking and set the DSCP value to 252.

```
test     Password                =          "test2"
         Ascend-Route-IP         =          Route-IP-Yes,
         Ascend-Bridge           =          Bridge-No,
         Ascend-Idle-Limit       =          0,
         Ascend-IP-TOS           =          IP-TOS-Dscp,
         Ascend-IP-TOS-DSCP      =          252
```

TAOS 9.1.1 corrected problems

Table 5 lists the trouble report (TR) identification numbers and the problems corrected in TAOS 9.1.1.

Table 5. Trouble report ID numbers and problems corrected in TAOS 9.1.1

TR ID	Problem corrected
TR 6000936	Warning 330 and FE42 (fatal error) messages were appearing on CSM3V slot cards in TAOS units. (The FE42 index decoded as FATAL_READY_HANG_FAULT. The Warning 330 index decoded as ERROR_GDB_PROTECTION_FAULT.)

Table 5. Trouble report ID numbers and problems corrected in TAOS 9.1.1 (continued)

TR ID	Problem corrected
TR 6001020	Modems in TAOS units were sometimes moved to the suspect list for inadequate reasons.
TR 6001758	TAOS units were not correctly handling L2TP packets larger than 1500 bytes.
TR 6001935	The L2TP M-bit was incorrectly set to 0 instead of 1 for AVP 29 and AVP 32.
TR 6001986	The `netstat -i` command reported incorrect values for the DS3-ATM, OC3-ATM, and E3-ATM slot cards.
TR 6002013	The `refresh -p` command sometimes failed to correctly update routes in the routing table.
TR 6002076	L2TP authentication sometimes failed because the `hostname` field length was too small.
TR 6002118	TAOS units with a CSMX Modem slot card sometimes experienced Warning 179 errors.
TR 6002133	When configured to use two-stage dialing, the MultiVoice® Gateway did not prompt the user for the end point phone number.
TR 6002143	MultiVoice® Gateways did not successfully place fax calls to some destinations.
TR 6002167	Some NT users were unable to establish a PPTP session, receiving the error message `GRE_PB: No listener for protocol 0x880B`.
TR 6002170	When adding channels to an MP connection, TAOS units ignored the subaddress in the BACP field.
TR 6002171	An incorrect Caller ID was assigned to incoming ISDN calls whose caller ID was suppressed.
TR 6002172	A TAOS unit could leave an SS7/CIC in a connected state even after the call was disconnected.
TR 6002189	The SNMP queue did not recover correctly after being flooded.
TR 6002197	Slot cards could report an incorrect time even though the shelf controller was correctly set.
TR 6002201	A TAOS unit could experience Warning 179 when a T1 line was disconnected.
TR 6002209	When receiving ISDN connections, CSMV3 slot cards could incorrectly log `invalid mdm con str`.
TR 6002216	When a TAOS unit had the default MRU set to 1500 for Multilink PPP sessions some packet loss could be experienced.
TR 6002220	When using redundant Ethernet links, incorrect routes and packet loss could result from disconnecting one of those links.

Table 5. Trouble report ID numbers and problems corrected in TAOS 9.1.1 (continued)

TR ID	Problem corrected
TR 6002227	MAX TNT units could incorrectly leave E1 channels in a seized state instead of releasing them to idle.
TR 6002233	MultiVoice® Gateways incorrectly detected a phase-reversal CED and failed to report fax v.21 flags.
TR 6002261	MAX TNT units were unable to use BACP to initiate lowering the available bandwidth by dropping a channel during an ISDN MPPP call.
TR 6002275	T1 slot cards set to an all zeros idle pattern would incorrectly have an all ones idle pattern after the card was rebooted.
TR 6002279	A TAOS unit with a CSMX modem slot card could experience a fatal error.
TR 6002320	TAOS units with MADD or CSM3V slot cards could experience FE8, FE29, or FE42 errors.
TR 6002354	Performing an open command that requires a DNS lookup could cause a Warning 999 error.
TR 6002366/ TR 6002494	Long syslog messages were truncated.
TR 6002367	The `pbecho` command reported incomplete information.
TR 6002369	Multiple nailed T1s between two TAOS units in a MPP configuration did not function correctly.
TR 6002395	The MADD2-SNMP agent incorrectly set the `mdmIDProductDetails` string.
TR 6002412	When a MultiVoice® Gateway was configured as a multiple logical gateway (MLG) using two-stage dialing, it could not use transparent cause codes.
TR 6002418	PPTP-connected web browsers failed to display JPEG images because buffers larger than those supported by HDLC were not transmitted.
TR 6002423	The MultiVoice® Gateway was incorrectly set to use B3 as the busy tone for Brazil instead of the correct B2.
TR 6002442	TAOS units upgraded to TAOS 9.1.0 were not able to send data across frame relay switched PVCs.
TR 6002448	ATMP tunnels would incorrectly remain active even after it's PVC got disconnected.
TR 6002458	If an E1 profile had the `number-complete` parameter set to `time-out`, a Warning 179 could occur.
TR 6002468	Tag 0x99 (estimated average latency) has been added in IPDC messages (RCR/ACR), which is supported by SoftSwitch.
TR 6002504	An incorrect LCN was being returned by a MultiVoice® Gateway in FastStart elements.

Table 5. Trouble report ID numbers and problems corrected in TAOS 9.1.1 (continued)

TR ID	Problem corrected
TR 6002505	H.323 calls made by a MultiVoice® Gateway configured with video codecs that included CIFs were resetting.
TR 6002512	IP-IP decapsulation was not supported even when doing IP-IP encapsulation.
TR 6002528	DSCP (Differentiated Services Code Point) marking did not work correctly for OC3-ATM2 slot cards. Only the first packet was marked.
TR 6002534	When the d-channel became unavailable, it was reported in the `Line/T1-stats` and SNMP trap as a d-channel failure.
TR 6002536	When an E1 line was configured in NT mode, the MultiVoice® Gateway erroneously requested an optional Q.931 Information Element (IE).
TR 6002537	The RADIUS IPX network node attribute would not be correctly transferred for ATMP sessions.
TR 6002539	There were some layer 3 compliance problems in regard to ITU-T Q.931. Some connections were incorrectly established even when sent illegal information.
N/A	After call establishment and when voice announcements were repeated continuously, all audio was lost.
N/A	Audibility was lost in DRQ messages (forced drop calls) but was successful in PIN and DNIS requests.

Notices, Known Issues, and Caveats for TAOS 9.1.9

Read these notices and known issues carefully before upgrading to TAOS 9.1.9 software.

Notice of compatibility with RFC 2833

When using RFC 2833 for dual-tone multifrequency (DTMF) tone-passing, and passing the following tones:

- *
- #
- A
- B
- C
- D

TAOS software versions 9.1.0 through 9.1.7, and TAOS 10.0 will have compatiblity problems with TAOS 9.1.9. TAOS software versions 9.1.9 and onward, and TAOS 10.0.1 and onward, are compliant with RFC 2833.

Notice of TAOS license and upgrade changes

For the release of TAOS 9.1.9, the following changes are now in effect for TAOS base software and TAOS software upgrades, service, and maintenance.

Price change for base TAOS software

With the release of TAOS 9.1.9, the MAX TNT, APX 8000, MAX 6000 and MAX 3000 hardware platforms and TAOS software are priced separately. The TAOS software license is now a mandatory item for any new order. The license grants licensees the right to use the base TAOS 9.1.9 software on the specific platform purchased. *The right to upgrade to a subsequent TAOS minor or major software release that includes new operating system software features is no longer included as part of the base TAOS software license.*

Price change for upgrades and maintenance to TAOS 9.1.9 software

Upgrades to TAOS 9.1.9 software and subsequent releases for the MAX TNT, APX 8000, MAX 3000, and MAX 6000 platforms are available through Lucent Worldwide Services as part of an annual Software Upgrade and Maintenance Service contract. These contracts are priced separately for each platform and include the following software and services:

- TAOS software updates, upgrades, and support
- TAOS software options (hashcodes), updates, upgrades, and support
- Remote technical support
- Hardware maintenance and return